

Guide for **FEDERAL SPECIFICATIONS**

WWP-401

INCLUDING:

Cast Iron Soil Pipe and Fittings

EXTRA-HEAVY AND SERVICE-WEIGHT

THIS BOOKLET is designed to simplify drafting problems in laying out cast iron soil, water, and sewer systems. It contains all pertinent dimensions and tables found in Federal Specifications WWP-401 covering Extra-Heavy Cast Iron Soil Pipe and Fittings, plus new tables for Service-weight Pipe and Fittings found in amendment 2. A great deal of explanatory material scattered throughout the Federal Specifications has been condensed and simplified under "HOW TO USE THIS BOOKLET IN THE DRAFTING ROOM" (See next page)

CAST IRON SOIL PIPE INSTITUTE

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HOW TO USE THIS BOOKLET IN THE DRAFTING ROOM

This booklet reproduces sections of the current Federal Specifications WWP-401 and Amendment 3, covering dimensions of

1. **Extra-heavy Cast Iron Soil Pipe and Fittings (hereafter designated as Class A)**
2. **Service-weight Cast Iron Soil Pipe and Fittings (hereafter designated as Class B)**

Only Class A is illustrated, because essential roughing-in dimensions for Classes A and B are the same. Slight differences occur in wall thicknesses and hub and spigot dimensions—which are unimportant at the scales customarily used for piping plans and details. These differences are shown in Tables IIa and IIb.

The weights given for fittings apply to Class A only. As yet there are no Federal Specifications for the weights of Class B fittings.

Class B spigots will fit Class A hubs; Class A spigots, however, will not caulk properly in Class B hubs.

CAST IRON SOIL PIPE AND FITTINGS

Weights and Dimensions

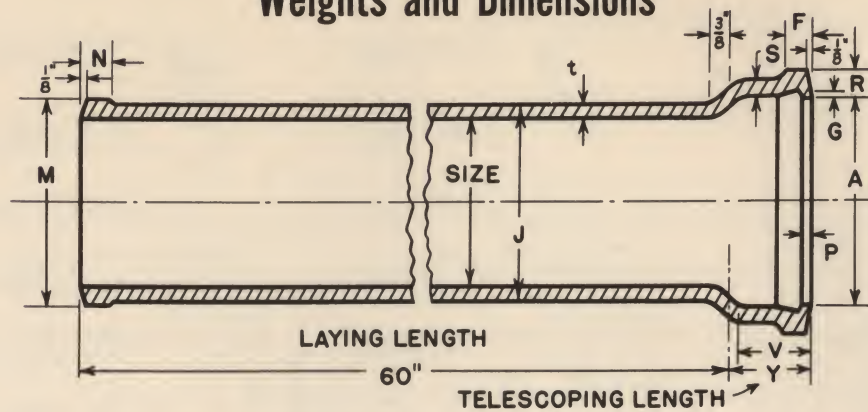


FIGURE 1.—Dimensions of cast iron soil pipe. (Hub and spigot dimensions apply also to fittings.)

TABLE IIa.—Dimensions of hubs and spigots for Extra-heavy, class A, cast iron soil pipe and fittings, in inches

Size (1)	inside diameter of hub	Outside diameter of spigot	Outside diameter of barrei	Thick-ness of barrei (min.)	Thickness of hub		Width of hub bead	Width of spigot bead	Depth of lead groove (2) (max.)	Depth of hub	Tele-scoping length	Distance from groove to end, P		
					Hub body (min.)	Over bead (min.)						Minimum, pipe and fittings	Maximum	
													Pipe	Fittings
	A	M	J	T	S	R	F	N	G	V	Y			
2.....	3.06	2.75	2.38	.012	.018	.037	.063	.056	.013	2.28	2.50	.025	.038	.031
3.....	4.19	3.88	3.50	.18	.25	.43	.69	.63	.13	2.56	2.75	.25	.38	.31
4.....	5.19	4.88	4.50	.18	.25	.43	.75	.69	.13	2.81	3.00	.25	.38	.31
5.....	6.19	5.88	5.50	.18	.25	.43	.75	.69	.13	2.81	3.00	.25	.38	.31
6.....	7.19	6.88	6.50	.18	.25	.43	.75	.69	.13	2.81	3.00	.25	.38	.31
8.....	9.50	9.00	8.63	.25	.34	.59	1.06	1.00	.19	3.38	3.50	.31	.50	.44
10.....	11.63	11.13	10.75	.31	.40	.65	1.06	1.00	.19	3.31	3.50	.31	.50	.44
12.....	13.75	13.13	12.75	.31	.40	.65	1.31	1.25	.19	4.13	4.25	.38	.63	.56
15.....	17.00	16.25	15.88	.37	.46	.71	1.31	1.25	.25	4.06	4.25	.38	.63	.56

NOTE 1.—Nominal inside diameter.

NOTE 2.—The shape of the groove is optional.

TABLE IIb.—Dimensions of hubs and spigots for Service-weight, class B, cast iron soil pipe and fittings

Size (1)	Inside diameter of hub	Outside diameter of spigot	Outside diameter of barrel	Thickness of barrel, minimum	Thickness of hub		Width of hub bead	Width of spigot bead	Depth of lead groove (2), maxi- mum	Telescoping length	Distance from groove to end, pipe and fittings	
					Hub body, minimum	Over bead, minimum					Minimum	Maximum
	A	M	J	t	s	R	F	N	G	Y	P	P
Inches	Inches	Inches	Inches	Inch	Inch	Inch	Inches	Inches	Inch	Inches	Inch	Inch
2.....	2.94	2.62	2.25	0.10	0.13	0.34	0.75	0.69	0.12	2.44	0.25	0.38
3.....	3.94	3.62	3.25	.12	.16	.37	.81	.75	.12	2.68	.25	.38
4.....	4.94	4.62	4.25	.12	.16	.37	.88	.81	.12	2.94	.25	.38
5.....	5.94	5.62	5.25	.12	.16	.37	.88	.81	.12	2.94	.25	.38
6.....	6.94	6.62	6.25	.12	.18	.37	.88	.81	.12	2.94	.25	.38
8.....	9.25	8.75	8.38	.17	.19	.44	1.19	1.12	.12	3.50	.25	.38
10.....	11.38	10.88	10.50	.21	.27	.53	1.19	1.12	.12	3.50	.31	.50
12.....	13.50	12.88	12.50	.22	.27	.53	1.44	1.38	.12	4.25	.38	.62
15.....	16.75	16.00	15.62	.25	.30	.58	1.44	1.38	.12	4.25	.38	.62

NOTE 1.—Nominal inside diameter.

NOTE 2.—Minimum depth of lead groove, 0.09 inch. Shape is optional.

TABLE III.—Weights of Extra-heavy, class A cast iron soil pipe, pounds

Pattern	Sizes (in inches)								
	2	3	4	5	6	8	10	12	15
Class A, single hub..	25	45	60	75	95	150	215	270	375
Class A, double hub..	26	47	63	78	100	157	225	285	395

Weights of Service-weight, class B cast iron soil pipe, pounds

Pattern	Sizes (in inches)								
	2	3	4	5	6	8	10	12	15
Class B, single hub..	20	30	40	52	65	100	145	190	255
Class B, double hub..	21	31	42	54	68	105	150	200	270

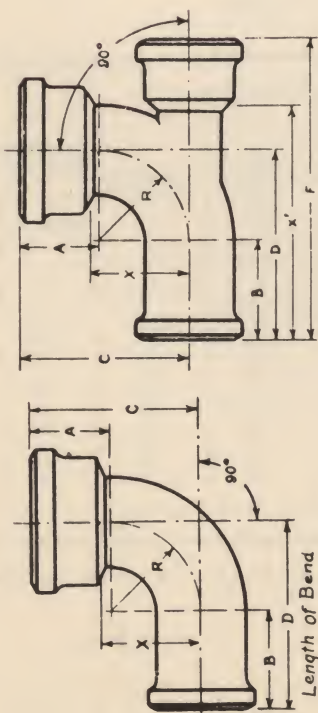


FIGURE 2.— $\frac{1}{4}$ bend.

TABLE IV.— $\frac{1}{4}$ bend (fig. 2)

Size (inches)	Dimensions in inches ¹						Weight (pounds)
	A	B	C	D	R	X	
2	2 3/4	3	5 3/4	6	3	3 3/4	5
3	3 1/4	3 1/4	6 3/4	7	3 1/4	4	10
4	3 3/4	4	7 1/4	8	4	4 1/4	15
5	3 3/4	4	8 1/4	9	4 1/4	5	19
6	3 3/4	4	8 1/4	9	5	5 1/4	24
8	4 1/4	5 1/4	10 1/4	11 1/4	6	6 1/4	61
10	4 1/4	5 1/4	10 1/4	12 1/4	7	7 1/4	78
12	5	7	13	15	8	8 3/4	111
15	5	7	14 1/4	16 1/4	9 1/4	10 3/4	169

¹ For details of hub and spigot, see table II.
² Weights for $\frac{1}{4}$ bends in lengths up to 36 inches are given in table XLI.
 NOTE.—Dimensions D and X are laying lengths.

TABLE V.— $\frac{1}{4}$ bend with heel inlet (fig. 3)

Size (inches)	Dimensions in inches ¹								Weight (pounds)
	A	B	C	D	F	R	X	X'	
3 by 2	3 1/4	3 1/4	6 3/4	7	11 1/4	3 1/4	4	9	13
4 by 2	3 3/4	4	7 1/4	8	13	4	4 1/4	10 1/4	18
4 by 3	3 3/4	4	7 1/4	8	13 1/4	4	4 1/4	10 1/4	19
5 by 2	3 3/4	4	8	8 1/4	14 1/4	4 1/4	5	11 3/4	22
5 by 3	3 3/4	4	8	8 1/4	14 1/4	4 1/4	5	11 3/4	24
5 by 4	3 3/4	4	8 1/4	8 1/4	14 1/4	4 1/4	5 1/4	12 1/4	25
6 by 2	3 3/4	4	8 1/4	9	15 1/4	5	5 1/4	12 1/4	27
6 by 3	3 3/4	4	8 1/4	9	15 1/4	5	5 1/4	12 1/4	29
6 by 4	3 3/4	4	8 1/4	9	15 1/4	5	5 1/4	12 1/4	30

¹ For details of hub and spigots, see table II.
 NOTE.—Dimensions D, X, and X' are laying lengths.

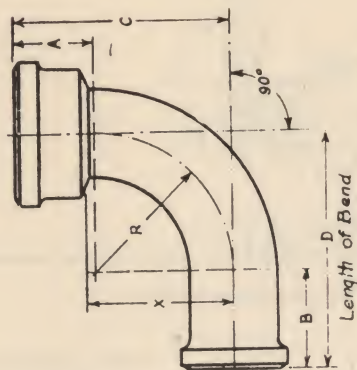


FIGURE 4.—Short and long sweeps.

TABLE VI.—Short sweep (fig. 4)

Size (inches)	Dimensions in inches ¹						Weight (pounds)
	A	B	C	D	R	X	
2	2 3/4	3	7 3/4	8	5	5 1/4	6
3	3 1/4	3 1/2	8 3/4	9	5 1/2	6	13
4	3 3/4	4	9 1/4	10	6	6 1/4	18
5	3 3/4	4	10	10 1/4	6 1/4	7	23
6	3 3/4	4	10 1/4	11	7	7 1/4	28
8	4 1/4	5 1/4	12 1/4	13 1/4	8	8 3/4	57
10	4 1/4	5 1/4	13 1/4	14 1/4	9	9 3/4	88
12	5	7	15	17	10	10 3/4	123
15	5	7	16 1/4	18 1/4	11 1/4	12 1/4	187

¹ For details of hubs and spigots, see table II.
 NOTE.—Dimensions D and X are laying lengths.

TABLE VII.—Long sweep (fig. 4)

Size (inches)	Dimensions in inches ¹						Weight (pounds)
	A	B	C	D	R	X	
2	2 3/4	3	10 3/4	11	8	8 1/4	8
3	3 1/4	3 1/4	11 3/4	12	8 1/2	9	16
4	3 3/4	4	12 1/4	13	9	9 1/4	22
5	3 3/4	4	13 1/4	13 1/4	9 1/4	10	28
6	3 3/4	4	13 1/4	14	10	10 1/4	34
8	4 1/4	5 1/4	15 1/4	16 1/4	11	11 1/4	67
10	4 1/4	5 1/4	16 1/4	17 1/4	12	12 1/4	103
12	5	7	18 1/4	20	13	13 1/4	141
15	5	7	19 1/4	21 1/4	14 1/4	15 1/4	212

¹ For details of hubs and spigots, see table II.
 NOTE.—Dimensions D and X are laying lengths.

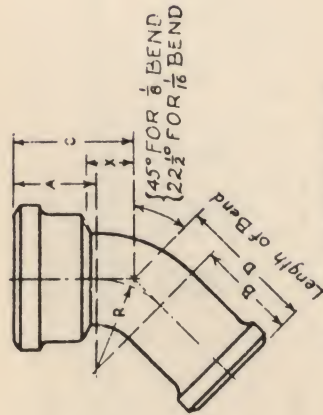


FIGURE 5.— $\frac{1}{4}$ bend and $\frac{1}{16}$ bend.

TABLE VIII.— $\frac{1}{4}$ bend (fig. 5)

Size (inches)	Dimensions in inches ¹								Weight (pounds) ²
	A	B	C	D	R	X			
2	2 3/4	3	4 1/4	4 1/4	3	1 1/4			4
3	3 3/4	3 1/2	4 1/4	4 1/4	3 1/2	1 1/4			8
4	4 3/4	4	5 1/4	5 1/4	4	2 3/4			12
5	5 3/4	4 1/2	6 1/4	6 1/4	5	4 1/4			18
6	6 3/4	5 1/2	7 1/4	7 1/4	6	5 3/4			24
8	8 3/4	7	9 1/4	9 1/4	8	7 3/4			41
10	10 3/4	9	11 1/4	11 1/4	10	9 3/4			61
12	12 3/4	11	13 1/4	13 1/4	12	11 3/4			87
15	15 3/4	14	16 1/4	16 1/4	15	14 3/4			129

¹ For details of hubs and spigots, see table II.

² Weights for $\frac{1}{4}$ bends in lengths up to 36 inches are given in table XLI.

NOTE.—Dimensions D and X are laying lengths.

TABLE IX.— $\frac{1}{16}$ bend (fig. 5)

Size (inches)	Dimensions in inches ¹								Weight (pounds)
	A	B	C	D	R	X			
2	2 3/4	3	3 3/4	3 3/4	3	3/4			4
3	3 3/4	3 1/2	4 1/4	4 1/4	3 1/2	1 1/4			8
4	4 3/4	4	5 1/4	5 1/4	4	2 3/4			12
5	5 3/4	4 1/2	6 1/4	6 1/4	5	4 1/4			18
6	6 3/4	5 1/2	7 1/4	7 1/4	6	5 3/4			24
8	8 3/4	7	9 1/4	9 1/4	8	7 3/4			41
10	10 3/4	9	11 1/4	11 1/4	10	9 3/4			61
12	12 3/4	11	13 1/4	13 1/4	12	11 3/4			87
15	15 3/4	14	16 1/4	16 1/4	15	14 3/4			129

¹ For details of hubs and spigots, see table II.

NOTE.—Dimensions D and X are laying lengths.

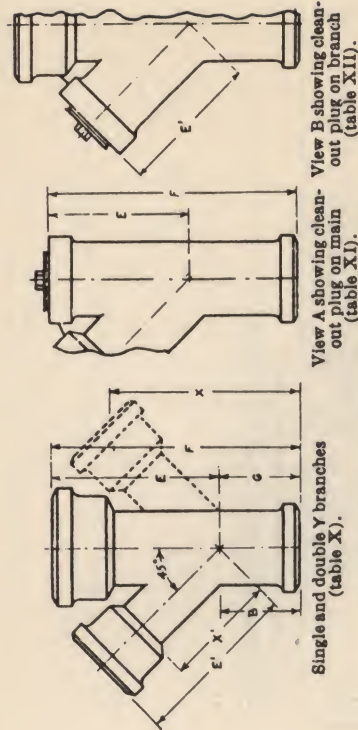


FIGURE 6.—Y branches, single, double, and with cleanout.

TABLE X.—Y branches, single and double (fig. 6)

Size (inches)	Dimensions in inches ¹										Weight, single (pounds) ²	Weight, double (pounds) ²
	B (min)	E	E'	F	G	X	X'					
2	3 1/4	6 1/4	6 1/4	10 1/4	4	8	4				8	11
3	4	8 1/4	8 1/4	13 1/4	5	10 1/4	5 1/4				17	22
4	4 1/4	9 1/4	9 1/4	15 1/4	6	12 1/4	6 3/4				24	32
5	4 1/2	10 1/4	10 1/4	17 1/4	7	14 1/4	7 3/4				32	41
6	4 3/4	11 1/4	11 1/4	19 1/4	8	16 1/4	8 3/4				41	51
8	5 1/4	13 1/4	13 1/4	23 1/4	10	19 1/4	11 1/4				62	82
10	6 1/4	15 1/4	15 1/4	27 1/4	12	22 1/4	13 1/4				82	107
12	7 1/4	17 1/4	17 1/4	31 1/4	14	25 1/4	15 1/4				107	138
15	8 3/4	20 1/4	20 1/4	35 1/4	17	29 1/4	18 1/4				138	186
3 by 2	4	8 3/4	8 3/4	12 1/4	5 1/4	10 1/4	5 1/4				14	18
4 by 2	4	9 3/4	9 3/4	13 1/4	6 1/4	11 1/4	6 1/4				17	21
5 by 2	4	10 3/4	10 3/4	15 1/4	7 1/4	12 1/4	7 1/4				20	26
6 by 2	4	11 3/4	11 3/4	17 1/4	8 1/4	14 1/4	8 1/4				24	30
8 by 2	4	13 1/4	13 1/4	19 1/4	10 1/4	16 1/4	10 1/4				30	38
10 by 2	4	15 1/4	15 1/4	21 1/4	12 1/4	18 1/4	12 1/4				37	47
12 by 2	4	17 1/4	17 1/4	23 1/4	14 1/4	20 1/4	14 1/4				45	58
15 by 2	4	19 1/4	19 1/4	25 1/4	16 1/4	22 1/4	16 1/4				53	69
3 by 3	5 1/4	13 1/4	13 1/4	23 1/4	10 1/4	16 1/4	10 1/4				52	68
4 by 3	5 1/4	14 1/4	14 1/4	24 1/4	11 1/4	17 1/4	11 1/4				63	82
5 by 3	5 1/4	15 1/4	15 1/4	25 1/4	12 1/4	18 1/4	12 1/4				74	96
6 by 3	5 1/4	16 1/4	16 1/4	26 1/4	13 1/4	19 1/4	13 1/4				86	110
8 by 3	5 1/4	18 1/4	18 1/4	28 1/4	15 1/4	21 1/4	15 1/4				107	138
10 by 3	5 1/4	20 1/4	20 1/4	30 1/4	17 1/4	23 1/4	17 1/4				129	168
12 by 3	5 1/4	22 1/4	22 1/4	32 1/4	19 1/4	25 1/4	19 1/4				151	197
15 by 3	5 1/4	24 1/4	24 1/4	34 1/4	21 1/4	27 1/4	21 1/4				174	236
3 by 4	6 1/4	15 1/4	15 1/4	25 1/4	12 1/4	18 1/4	12 1/4				104	133
4 by 4	6 1/4	16 1/4	16 1/4	26 1/4	13 1/4	19 1/4	13 1/4				129	168
5 by 4	6 1/4	17 1/4	17 1/4	27 1/4	14 1/4	20 1/4	14 1/4				151	197
6 by 4	6 1/4	18 1/4	18 1/4	28 1/4	15 1/4	21 1/4	15 1/4				174	236
8 by 4	6 1/4	20 1/4	20 1/4	30 1/4	17 1/4	23 1/4	17 1/4				207	286
10 by 4	6 1/4	22 1/4	22 1/4	32 1/4	19 1/4	25 1/4	19 1/4				240	336
12 by 4	6 1/4	24 1/4	24 1/4	34 1/4	21 1/4	27 1/4	21 1/4				283	396
15 by 4	6 1/4	26 1/4	26 1/4	36 1/4	23 1/4	29 1/4	23 1/4				336	466
3 by 6	7 1/4	18 1/4	18 1/4	28 1/4	15 1/4	21 1/4	15 1/4				133	174
4 by 6	7 1/4	19 1/4	19 1/4	29 1/4	16 1/4	22 1/4	16 1/4				151	197
5 by 6	7 1/4	20 1/4	20 1/4	30 1/4	17 1/4	23 1/4	17 1/4				174	236
6 by 6	7 1/4	21 1/4	21 1/4	31 1/4	18 1/4	24 1/4	18 1/4				207	286
8 by 6	7 1/4	23 1/4	23 1/4	33 1/4	20 1/4	26 1/4	20 1/4				240	336
10 by 6	7 1/4	25 1/4	25 1/4	35 1/4	22 1/4	28 1/4	22 1/4				283	396
12 by 6	7 1/4	27 1/4	27 1/4	37 1/4	24 1/4	30 1/4	24 1/4				336	466
15 by 6	7 1/4	29 1/4	29 1/4	39 1/4	26 1/4	32 1/4	26 1/4				396	536

¹ For details of hubs and spigots, see table II. For details of side inlets, see fig. 23.

² Weights for Y branches in lengths up to 36 inches are given in table XLI.

See next page for continuation of this table.

TABLE X.—Y branches, single and double (fig. 6)—Continued

Size (inches)	Dimensions in inches ¹						Weight, single (pounds) ²	Weight, double (pounds) ²
	B (min)	E	E'	F	G	X	X'	
12 by 6.....	7	10 ¹ / ₁₆	16 ¹ / ₁₆	22 ¹ / ₄	5 ¹ / ₁₆	18	13 ¹ / ₁₆	111
12 by 8.....	7	18 ¹ / ₁₆	18 ¹ / ₁₆	25 ¹ / ₄	7 ¹ / ₁₆	21	14 ¹ / ₁₆	136
12 by 10.....	7	19 ¹ / ₁₆	19 ¹ / ₁₆	28 ¹ / ₄	8 ¹ / ₁₆	24	15 ¹ / ₁₆	160
15 by 6.....	7	18 ¹ / ₁₆	18 ¹ / ₁₆	22 ¹ / ₄	4	18	15 ¹ / ₁₆	183
15 by 8.....	7	19 ¹ / ₁₆	20 ¹ / ₁₆	25 ¹ / ₄	5 ¹ / ₁₆	21	17 ¹ / ₁₆	207
15 by 10.....	7	21 ¹ / ₁₆	21 ¹ / ₁₆	28 ¹ / ₄	6 ¹ / ₁₆	24	18 ¹ / ₁₆	246
15 by 12.....	7	22 ¹ / ₁₆	23 ¹ / ₁₆	31 ¹ / ₄	8 ¹ / ₁₆	27	19 ¹ / ₁₆	292

¹ For details of hubs and spigots, see table II. For details of side inlets, see fig. 28.² Weights for Y branches in lengths up to 36 inches are given in table XLI.

NOTE.—Dimensions X and X' are laying lengths.

TABLE XI.—Y branch cleanout with screw plug on main (fig. 6, view A)

Size (inches)	Dimensions in inches ¹						Weight without plug (pounds)
	E	E'	F	G	X	X'	
2.....	5 ¹ / ₄	6 ¹ / ₄	9 ¹ / ₄	4	4	1 ¹ / ₄	9
3.....	6 ¹ / ₄	8 ¹ / ₄	11 ¹ / ₄	5	5 ¹ / ₄	2 ¹ / ₄	15
4.....	7 ¹ / ₄	9 ¹ / ₄	13 ¹ / ₄	5 ¹ / ₄	6 ¹ / ₄	3 ¹ / ₄	21
5.....	9 ¹ / ₄	11	14 ¹ / ₄	5 ¹ / ₄	8	4 ¹ / ₄	28
6.....	10 ¹ / ₄	12 ¹ / ₄	16 ¹ / ₄	5 ¹ / ₄	9 ¹ / ₄	5 ¹ / ₄	37

¹ For dimensions of hubs and spigots, see table II.² For details of tapping boss, see table XL; and for screw plugs, see table XXXVII. Tappings permit entrance of testing plugs.

NOTE.—Dimension X' is the laying length.

TABLE XII.—Y branch cleanout with screw plug on branch (fig. 6, view B)

Size (inches)	Dimensions in inches ¹						Weight without plug (pounds)
	E	E'	F	G	X	X'	
2.....	6 ¹ / ₄	5 ¹ / ₄	10 ¹ / ₄	4	8	1 ¹ / ₄	9
3.....	8 ¹ / ₄	6 ¹ / ₄	13 ¹ / ₄	5	10 ¹ / ₄	2 ¹ / ₄	15
4.....	9 ¹ / ₄	7 ¹ / ₄	15	5 ¹ / ₄	12	3 ¹ / ₄	21
5.....	11	9 ¹ / ₄	16 ¹ / ₄	5 ¹ / ₄	13 ¹ / ₄	4 ¹ / ₄	28
6.....	12 ¹ / ₄	10 ¹ / ₄	18	5 ¹ / ₄	15	5 ¹ / ₄	37

¹ For dimensions of hubs and spigots, see table II.² For details of tapping boss, see table XL; and for screw plugs, see table XXXVII. Tappings permit entrance of testing plugs.

NOTE.—Dimension X is the laying length.

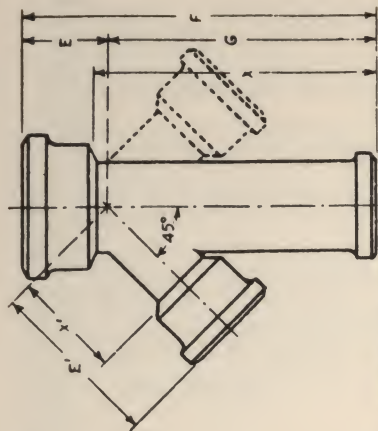


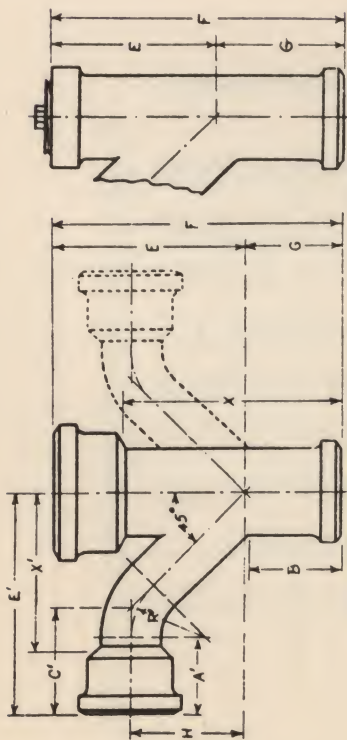
FIGURE 7.—Y branch, inverted, single and double.

TABLE XIII.—Y branches, inverted, single and double (fig. 7)

Size (inches)	Dimension in inches ¹						Weight single (pounds)	Weight double (pounds)
	E	E'	F	G	X	X'		
2.....	3 ¹ / ₄	5 ¹ / ₄	12	8 ³ / ₄	9 ¹ / ₄	3 ³ / ₄	9	12
3.....	4	7 ³ / ₄	15 ¹ / ₄	11 ¹ / ₄	12 ¹ / ₄	4 ³ / ₄	18	23
4.....	4 ¹ / ₂	8 ³ / ₄	17	12 ¹ / ₄	14	5 ³ / ₄	25	32
5.....	4 ³ / ₄	10 ³ / ₄	18 ¹ / ₄	13 ³ / ₄	15 ¹ / ₄	7 ¹ / ₄	33	42
6.....	5	11 ³ / ₄	20	15	17	8 ³ / ₄	41	51
3 by 2.....	3 ¹ / ₄	6 ³ / ₄	13 ³ / ₄	10 ³ / ₄	11	4 ³ / ₄	15	18
4 by 2.....	3 ¹ / ₄	7 ³ / ₄	14	10 ³ / ₄	11	4 ³ / ₄	18	21
4 by 3.....	3 ¹ / ₄	8 ³ / ₄	15 ¹ / ₄	11 ³ / ₄	12 ¹ / ₄	5 ³ / ₄	22	27
5 by 2.....	3 ¹ / ₄	8 ³ / ₄	14	11 ³ / ₄	11	5 ³ / ₄	22	25
5 by 3.....	3 ¹ / ₄	9 ³ / ₄	15 ¹ / ₄	12 ³ / ₄	12 ¹ / ₄	6 ³ / ₄	25	31
5 by 4.....	4	9 ³ / ₄	17	13	14	6 ³ / ₄	29	37
6 by 2.....	2 ³ / ₄	8 ³ / ₄	14	11 ³ / ₄	11	6 ³ / ₄	25	29
6 by 3.....	2 ³ / ₄	9 ³ / ₄	15 ¹ / ₄	12 ³ / ₄	12 ¹ / ₄	6 ³ / ₄	29	34
6 by 4.....	3 ³ / ₄	10 ³ / ₄	17	13 ³ / ₄	14	7 ¹ / ₄	33	40
6 by 5.....	4 ³ / ₄	10 ³ / ₄	18 ¹ / ₄	14 ³ / ₄	15 ¹ / ₄	7 ³ / ₄	37	46

¹ For details of hubs and spigots, see table II.

NOTE.—Dimensions X and X' are laying lengths.



View A showing cleanout plug on main (table XV).

FIGURE 8.—Combination Y and 1/4 bend.

TABLE XIV.—Combination Y and 1/4 bend, single and double (fig. 8)

Size (inches)	Dimensions in inches ¹										Weight, single double (pounds)	Weight, single double (pounds)	
	A'	B (min.)	C'	E	E'	F	G	H	R'	X	X'		
2	2 3/4	3 3/4	4	6 1/2	7 3/4	10 1/2	4	3 3/4	3	8	4 3/4	10	15
3	3 1/4	4	4 3/4	8 1/4	9 1/4	13 1/4	5	5 1/4	3 1/2	10 1/2	7	20	29
4	3 3/4	4 1/4	5 1/4	9 1/4	10 1/4	15 1/4	5 1/4	6 1/4	4	12	9	29	43
5	4	4 3/4	5 3/4	10 1/4	11 1/4	17 1/4	5 3/4	7 1/4	4 1/2	13 1/4	11	38	56
6	4 1/4	5 1/4	6 1/4	11 1/4	12 1/4	19 1/4	6 1/4	8 1/4	5	15	12 1/2	50	75
3 by 2	3	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3	9	5 3/4	15	20
4 by 2	3	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3	9	5 3/4	15	20
5 by 2	3	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3	9	5 3/4	15	20
6 by 2	3	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3	9	5 3/4	15	20
3 by 3	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
4 by 3	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
5 by 3	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
6 by 3	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
3 by 4	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
4 by 4	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
5 by 4	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
6 by 4	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
3 by 5	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
4 by 5	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
5 by 5	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23
6 by 5	3 1/4	4	4 1/4	8 1/4	9 1/4	13 1/4	4 1/2	5 1/4	3 1/2	10 1/2	6 1/4	18	23

1 For details of hubs and spigots, see table II; for details of side inlets, see fig. 28.

NOTE.—Dimensions X and X' are laying lengths.

TABLE XV.—Combination Y and 1/4 bend cleanout with screw plug on main 1 (fig. 8, view A)

Size (inches)	Dimensions in inches 1		I. P. S. tapping 1	Weight without plug (pounds)	Size (inches)	Dimensions in inches 1		I. P. S. tapping 1	Weight without plug (pounds)
	E	F				E	F		
2	5 3/4	9 1/4	1 1/2	9	5	9 1/4	14 3/4	4 1/2	34
3	6 3/4	11 1/4	2 1/2	17	6	10 3/4	16 1/4	5 1/2	47
4	7 3/4	13 1/4	3 1/2	26					

1 For dimensions not given in this table, see table XIV.

2 For details of tapping boss, see table XL; and for screw plugs, see table XXXVII.

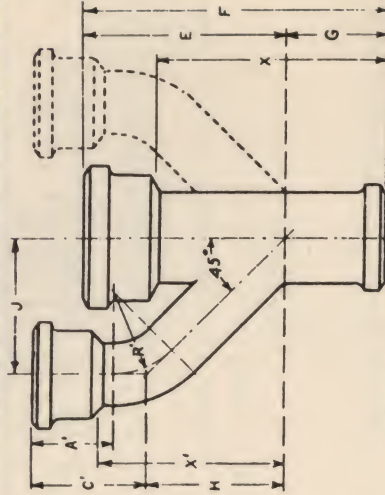


FIGURE 9.—Upright Y branches, single and double.

TABLE XVI.—Y branches, upright, single and double (fig. 9)

Size (inches)	Dimensions in inches 1										Weight, single (pounds)	Weight, double (pounds)
	A'	C'	E	F	G	H	J	R'	X	X'		
2	2 3/4	4	6 1/4	10 1/4	4	4 1/4	4 1/4	3	8	6	10	15
3	3 1/4	4 1/4	8 1/4	13 1/4	5	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	20	29
4	3 3/4	4 3/4	9 1/4	15 1/4	5 1/4	6 1/4	6 1/4	4	12	8 1/4	29	42
5	4	5 1/4	11 1/4	17 1/4	5 3/4	7 1/4	7 1/4	4 1/2	13 1/4	9 1/4	37	54
6	4 1/4	6 1/4	13 1/4	19 1/4	6 1/4	8 1/4	8 1/4	5	15	11 1/4	47	70
3 by 2	3	4	8 1/4	12 1/4	4 1/2	4 1/4	4 1/4	3	9	6 3/4	16	20
4 by 2	3	4	8 1/4	12 1/4	4 1/2	4 1/4	4 1/4	3	9	6 3/4	16	20
5 by 2	3	4	8 1/4	12 1/4	4 1/2	4 1/4	4 1/4	3	9	6 3/4	16	20
6 by 2	3	4	8 1/4	12 1/4	4 1/2	4 1/4	4 1/4	3	9	6 3/4	16	20
3 by 3	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
4 by 3	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
5 by 3	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
6 by 3	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
3 by 4	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
4 by 4	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
5 by 4	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
6 by 4	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
3 by 5	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
4 by 5	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
5 by 5	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24
6 by 5	3 1/4	4 1/4	9 1/4	13 1/4	4	5 1/4	5 1/4	3 1/2	10 1/2	7 1/4	22	24

1 For details of hubs and spigots, see table II.

NOTE.—Dimensions X and X' are laying lengths.

TABLE XVII.—Sanitary T branches, single (fig. 10)—Continued

Size (inches)	Dimensions in inches ¹								Weight, single (pounds) ²
	A'	B	E	E'	F	G	R'	X	
15 by 6.....	3 1/4	7	8 3/4	13	20 3/4	12	5	16 1/2	10
15 by 8.....	4 1/4	7	9 3/4	13 3/4	22 3/4	13	7	18 1/2	10 1/4
15 by 10.....	4 3/4	7	10 3/4	13 3/4	24 3/4	14	7	20 1/2	10 3/4
15 by 12.....	5	7	11 3/4	14 1/4	26 3/4	15	8	22 1/2	10 3/4

¹ For details of hubs and spigots, see table II. For details of side inlets, see fig. 28.

² Weights of sanitary T branches in lengths up to 36 inches are given in table XLI.

NOTE.—Dimensions X and X' are laying lengths.

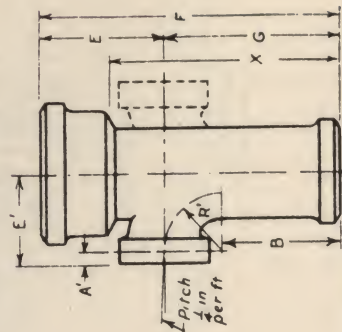


FIGURE 11.—Tapped sanitary T branches, single and double.

TABLE XVIII.—Sanitary T branches, tapped, single and double (fig. 11)

Size (inches) (note 2)	Dimensions in inches ¹								Weight (pounds) ²	
	A'	B	E	E'	F	G	R'	X	Single	Double
2 by 2.....	1 1/4	4	4 1/4	3 1/4	10 1/2	6 1/4	2 3/4	8	8	10
3 by 2.....	1 1/4	4 1/4	4 3/4	3 3/4	11 1/4	7	2 3/4	9	12	14
4 by 2.....	1 1/4	4 1/4	5	4 1/4	12	7	2 3/4	9	15	17
5 by 2.....	1 1/4	4 1/4	5	4 3/4	12	7	2 3/4	9	18	20
6 by 2.....	1 1/4	4 3/4	5	5 1/4	12	7	2 3/4	9	21	23

¹ For details of hubs and spigots, see table II. For details of branches, see table XL.

² Weights of tapped sanitary T branches in 18- and 24-inch lengths are given in table XLI.

NOTE 1.—Dimension X is the laying length.

NOTE 2.—All sizes of branches are furnished with 1 1/4- and 1 1/2-inch tappings, in addition to the 2-inch tapping, for which dimensions B, E', and R' (in inches) shall be as follows:

Size (inches)	B	E'	R'	Size (inches)	B	E'	R'
2.....	4 1/4	2 1/4	1 1/4	6.....	5 1/4	4 1/4	1 1/4
3.....	5 1/4	3 1/4	1 1/4	6.....	5 1/4	4 1/4	1 1/4
4.....	5 1/4	3 1/4	1 1/4				

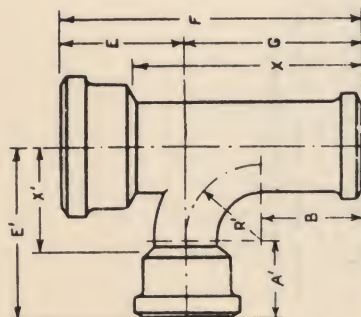


FIGURE 10.—Sanitary T branches, single.

TABLE XVII.—Sanitary T branches, single (fig. 10)

Size (inches)	Dimensions in inches ¹								Weight, single (pounds) ²
	A'	B	E	E'	F	G	R'	X	
2.....	2 1/4	3 3/4	4 1/4	5 1/4	10 1/2	6 1/4	2 3/4	8	8
3.....	3 1/4	4	5 1/4	6 3/4	12 3/4	7 1/4	3 1/2	10	16
4.....	3 3/4	4	6	7 1/2	14	8	4	11	22
5.....	3 3/4	4	6 1/2	8	15	8 1/2	4 1/2	12	28
6.....	3 3/4	4	7	8 1/2	16	9	5	13	34
8.....	4 1/4	5 3/4	8 3/4	10 1/4	20 1/4	11 3/4	6	17	72
10.....	4 1/4	5 3/4	9 3/4	11 3/4	22 1/2	12 3/4	7	19	108
12.....	5	7	11 3/4	13	24 3/4	15	8	22 1/2	153
15.....	5	7	13 1/4	14 1/2	28 3/4	16 1/2	9 1/2	25 1/2	229
3 by 2.....	3	4	4 3/4	5 1/4	11 3/4	7	3	9	14
4 by 2.....	3	4	5	6 1/4	12	8	3	9	17
5 by 2.....	3 1/4	4	5 1/2	7 1/4	13	8 1/2	3 1/2	10	20
6 by 2.....	3 1/4	4	6	8 1/4	14	9 1/2	3 1/2	11	23
8 by 2.....	3 1/4	4	7 1/2	10 1/4	17 1/2	12 1/4	4	13	32
10 by 2.....	3 1/4	4	8 1/2	12 1/4	20 1/4	15 1/4	5	15	47
12 by 2.....	3 1/4	4	9 1/2	13 1/4	22 1/2	16 1/2	6	17	65
15 by 2.....	3 1/4	4	10 3/4	14 1/2	24 3/4	18 1/2	7	19	87
3 by 3.....	3 1/4	4	5 1/2	6 3/4	12 3/4	7 1/4	3 1/2	10	20
4 by 3.....	3 1/4	4	6	7 1/2	14	8	4	11	23
5 by 3.....	3 1/4	4	6 1/2	8 1/4	16	9 1/2	4 1/2	12	28
6 by 3.....	3 1/4	4	7	9 1/4	18 1/4	10 3/4	5	13	34
8 by 3.....	3 1/4	4	8 1/2	10 3/4	20 3/4	12 3/4	6	15	57
10 by 3.....	3 1/4	4	9 3/4	11 3/4	22 1/2	14 1/4	7	17	70
12 by 3.....	3 1/4	4	10 3/4	12 3/4	24 3/4	15 1/4	8	19	96
15 by 3.....	3 1/4	4	11 3/4	13 3/4	26 3/4	16 1/2	9	21	120
18 by 3.....	3 1/4	4	12 3/4	14 3/4	28 3/4	17 1/2	10	23	153
24 by 3.....	4 1/4	5 3/4	15 3/4	17 3/4	34 3/4	21 3/4	12 1/2	28 1/2	229

¹ For details of hubs and spigots, see table II. For details of side inlets, see fig. 28.

² Weights of sanitary T branches in lengths up to 36 inches are given in table XLI.

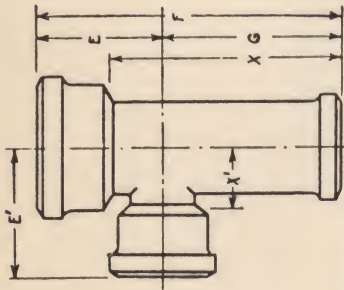


FIGURE 12.—T branches, single (table XIX).

TABLE XIX.—T branches, single (note 1) (fig. 12)

Size (inches)	Dimensions in inches ¹						Weight (pounds) ²
	E	E'	F	G	X	X'	
2	4 1/4	4 1/4	10 1/4	6 1/4	8	1 3/4	8
3	5 1/4	5 1/4	12 3/4	7 1/4	10	2 3/4	16
4	6	6	14	8 1/4	11	3	21
5	6 1/4	6 1/4	15	8 1/2	12	3 1/4	26
6	7	7	16	9	13	4	32
8	8 3/4	8 3/4	20 1/4	11 3/4	17	5 1/4	67
10	9 3/4	9 3/4	22 1/4	12 3/4	19	6 1/4	106
12	11 3/4	11 3/4	26 3/4	15	22 1/4	7 1/4	160
15	13 1/4	13 1/4	29 3/4	16 1/2	25 1/4	9	228
3 by 2	5 3/4	5 3/4	11 3/4	7	9	2 1/4	13
4 by 2	5 1/2	5 1/2	12	7 1/2	10	3	16
5 by 2	5 3/4	5 3/4	13	7 1/2	10	3 1/4	18
6 by 2	6 1/4	6 1/4	14	7 1/2	10	3 1/2	22
8 by 2	6 1/2	6 1/2	14	8	11	3 3/4	24
10 by 2	6 1/2	6 1/2	13	7 1/2	10	4	26
12 by 2	7	7	15	8 1/4	12	4	30
15 by 2	7 3/4	7 3/4	15 1/2	8 1/4	12	5 1/4	43
8 by 3	8 1/4	8 1/4	19 1/2	10 3/4	13	5 1/4	47
10 by 3	8 3/4	8 3/4	18 1/2	10 3/4	14	5 3/4	50
12 by 3	9 3/4	9 3/4	18 1/2	10 3/4	13	5 3/4	53
15 by 3	9 3/4	9 3/4	17 1/2	10 3/4	13	5 3/4	56
10 by 4	9 3/4	9 3/4	17 1/2	10 3/4	14	6 1/4	70
12 by 4	9 3/4	9 3/4	18 1/2	10 3/4	14	6 1/4	74
15 by 4	10 3/4	10 3/4	20 1/2	11 3/4	15	6 1/4	78
10 by 5	10 3/4	10 3/4	18 1/2	11 3/4	14 1/2	6 1/4	93
12 by 5	10 3/4	10 3/4	19 1/2	11 3/4	15 1/2	7 1/4	93
15 by 5	10 3/4	10 3/4	20 1/2	12 3/4	16 1/2	7 1/4	100
12 by 6	10 3/4	10 3/4	22 3/4	13	18 1/2	7 1/4	117
15 by 6	10 3/4	10 3/4	24 3/4	13 1/2	20 1/2	7 1/4	130
12 by 8	10 3/4	10 3/4	24 3/4	15 1/2	18 1/2	8 1/4	140
15 by 8	12 3/4	12 3/4	24 3/4	13	18 1/2	8 3/4	160
10 by 10	13 1/4	13 1/4	24 3/4	14	20 1/2	8 3/4	177
15 by 10	13 1/4	13 1/4	26 3/4	16	22 3/4	9	196

¹ For details of hubs and spigots, see table II.

² Weights of T branches in lengths up to 36 inches are given in table XLI.

NOTE 1.—T branches are intended for venting and cleanout purposes only, and branch openings are not intended for use as waste inlets.

NOTE 2.—Dimensions X and X' are laying lengths

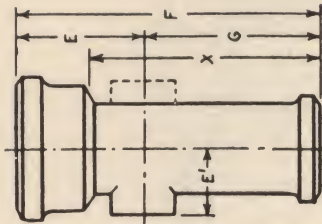


FIGURE 13.—Tapped T branches, single and double (table XX).

TABLE XX.—Tapped T branches, single and double (note 1) (fig. 13)

Size (inches) (note 3)	Dimensions in inches ¹						Weight (pounds) ²	
	E	E'	F	G	X	Double		
2	4 1/4	2	10 1/4	6 1/4	8	7		
3	5 1/4	2 1/4	11 3/4	7	9	12		
4	6	3	12	7 1/4	9	13		
5	6 1/4	3 1/4	12	7 1/4	9	17		
6	6	4	12	7	9	18		
8	8	4	12	7	9	20		

¹ For details of hubs and spigots, see table II; for details of tapping boss, see table XL.

² Weights of tapped T branches in 18- and 24-inch lengths are given in table XLI.

NOTE 1.—Tapped T branches are intended for venting and cleanout purposes only, and branch openings are not intended for use as waste inlets.

NOTE 2.—Dimension X is the laying length.

NOTE 3.—Dimensions and weights given apply to branches tapped 1 1/4, 1 1/2, and 2 inches, I. P. S.

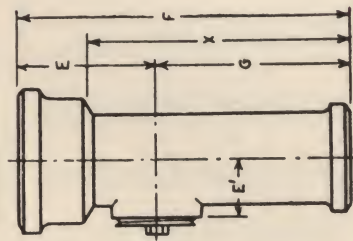


FIGURE 14.—T branch cleanout with screw plug (table XXI).

TABLE XXI.—T branch cleanout with screw plug (fig. 14)

Size (inches)	Dimensions in inches ¹					Weight without plug (pounds)
	E	E'	F	G	X	
2	4 1/4	2	10 1/4	6 1/4	8	7
3	5 1/4	2 1/4	12 3/4	7 1/4	10	13
4	6 1/4	3	14	8	11	17
5	6 1/4	3 1/4	16	8 1/4	12	22
6	7	4	16	9	13	28

¹ For details of hubs and spigots, see table II; for details of tapping bosses, see table XL; for screw plugs, see table XXXVII.

NOTE: Dimension X is the laying length.

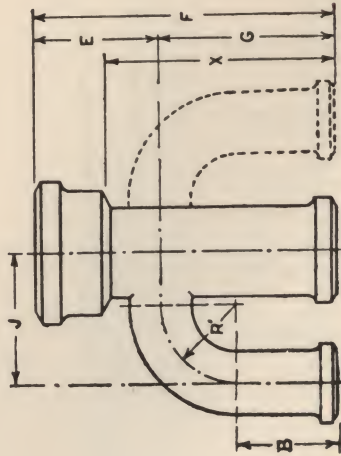


FIGURE 15.—Vent branches, single and double.

TABLE XXII.—Vent branches, single and double (fig. 15)

Size (inches)	Dimensions in inches ¹							Weight, single (pounds)	Weight, double (pounds)
	B	E	F	G	J	R'	X		
2	3 1/4	4 1/4	10 1/4	6 1/4	4 1/2	3	8	9	12
3	4	5 1/4	12 3/4	7 1/4	5 1/2	3 1/2	10	18	23
4	4	6 1/4	14	8	6 1/2	4	11	25	32
5	4	6 1/4	15	8 1/4	7 1/2	4 1/2	12	32	41
6	4	7	16	9	8 1/2	5	13	41	51
8	4	4 1/4	11 1/4	7	5	3	9	14	17
3 by 2	4	5 1/2	12	7 1/4	6 1/2	3	9	18	21
4 by 2	4	5 1/2	13	7 1/4	6 1/2	3 1/2	10	21	26
4 by 3	4	5 1/2	12	7	6	3	9	21	24
5 by 2	4	5 1/2	13	7 1/4	6 1/2	3 1/2	10	24	29
5 by 3	4	6	14	8	7	4	11	28	35
5 by 4	4	5	12	7	6 1/2	3	9	22	25
6 by 2	4	5 1/4	13	7 1/4	7	3 1/2	10	27	32
6 by 3	4	6	14	8	7 1/2	4	11	31	38
6 by 4	4	6 1/4	15	8 1/4	8	4 1/2	12	36	45

¹ For details of hubs and spigots, see table II.

NOTE.—Dimension X is the laying length.

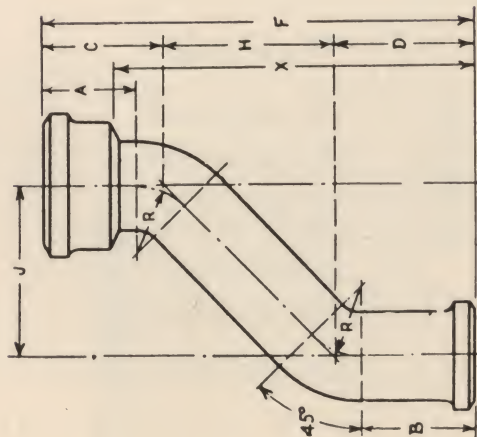


FIGURE 16.— $\frac{1}{4}$ bend offset.

TABLE XXIII.— $\frac{1}{4}$ bend offset, 2-inch (fig. 16)

Size (inches)	Dimensions in inches ¹										Weight (pounds)
	A	B	C	D	E	F	G	H	J	X	
2 by 2	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	7 1/4	5
2 by 4	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	9 1/4	6
2 by 6	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	11 1/4	8
2 by 8	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	13 1/4	9
2 by 10	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	15 1/4	10
2 by 12	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	17 1/4	11
2 by 14	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	19 1/4	12
2 by 16	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	21 1/4	13
2 by 18	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	23 1/4	14
2 by 20	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	25 1/4	15
2 by 22	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	27 1/4	16
2 by 24	2 1/4	2 1/4	3 1/4	4 1/4	1 1/4	1 1/4	1 1/4	2	2	29 1/4	17

¹ For details of hubs and spigots, see table II.

NOTE.—Dimension X is the laying length.

TABLE XXIV.— $\frac{1}{4}$ bend offset, 3-inch (fig. 16)

Size (inches)	Dimensions in inches ¹										Weight (pounds)
	A	B	C	D	E	F	G	H	J	X	
3 by 2	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	8 1/4	10
3 by 4	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	10 1/4	12
3 by 6	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	12 1/4	14
3 by 8	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	14 1/4	16
3 by 10	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	16 1/4	18
3 by 12	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	18 1/4	20
3 by 14	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	20 1/4	22
3 by 16	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	22 1/4	24
3 by 18	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	24 1/4	26
3 by 20	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	26 1/4	28
3 by 22	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	28 1/4	30
3 by 24	3 1/4	3 1/4	4 1/4	5 1/4	1 1/4	1 1/4	1 1/4	2	2	30 1/4	31

¹ For details of hubs and spigots, see table II.

NOTE.—Dimension X is the laying length.

TABLE XXV.— $\frac{1}{4}$ bend offset, 4-inch (fig. 16)

Size (inches)	Dimensions in inches ¹										Weight (pounds)
	A	B	C	D	E	F	G	H	J	X	
4 by 2	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	9	14
4 by 4	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	11	16
4 by 6	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	13	18
4 by 8	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	15	20
4 by 10	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	17	22
4 by 12	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	19	24
4 by 14	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	21	26
4 by 16	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	23	28
4 by 18	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	25	30
4 by 20	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	27	32
4 by 22	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	29	34
4 by 24	4 1/4	4 1/4	5 1/4	6 1/4	1 1/4	1 1/4	1 1/4	2	2	31	36

¹ For details of hubs and spigots, see table II.

NOTE.—Dimension X is the laying length.

TABLE XXVI.— $\frac{1}{4}$ bend offset, 5-inch (fig. 16)

Size (inches)	Dimensions in inches ¹								Weight (pounds)	
	A	B	C	D	F	H	J	R		X
5 by 2 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	12 1/4	2	2	3 1/4	9 1/4	17
5 by 4 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	14 1/4	4	4	3 1/4	11 1/4	21
5 by 6 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	16 1/4	6	6	3 1/4	13 1/4	24
5 by 8 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	18 1/4	8	8	3 1/4	15 1/4	27
5 by 10 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	20 1/4	10	10	3 1/4	17 1/4	30
5 by 12 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	22 1/4	12	12	3 1/4	19 1/4	33
5 by 14 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	24 1/4	14	14	3 1/4	21 1/4	36
5 by 16 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	26 1/4	16	16	3 1/4	23 1/4	39
5 by 18 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	28 1/4	18	18	3 1/4	25 1/4	42
5 by 20 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	30 1/4	20	20	3 1/4	27 1/4	45
5 by 22 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	32 1/4	22	22	3 1/4	29 1/4	48
5 by 24 - - - - -	3 1/4	4 1/4	4 1/4	5 1/4	34 1/4	24	24	3 1/4	31 1/4	51

¹ For details of hubs and spigots, see table II.

NOTE.—Dimension X is the laying length.

TABLE XXVII.— $\frac{1}{4}$ bend offset, 6-inch (fig. 16)

Size (inches)	Dimensions in inches ¹									Weight (pounds)
	A	B	C	D	F	H	J	R	X	
6 by 2.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5	5 $\frac{1}{4}$	13	2 $\frac{3}{4}$	2	4	10	21
6 by 4.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	15	4	4	4	12	25
6 by 6.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	17	6	6	4	14	28
6 by 8.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	19	8	8	4	16	32
6 by 10.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	21	10	10	4	18	36
6 by 12.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	23	12	12	4	20	39
6 by 14.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	25	14	14	4	22	43
6 by 16.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	27	16	16	4	24	46
6 by 18.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	29	18	18	4	26	50
6 by 20.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	31	20	20	4	28	54
6 by 22.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	33	22	22	4	30	57
6 by 24.....	3 $\frac{1}{4}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	35	24	24	4	32	61

¹ For details of hubs and spigots, see table II.

NOTE.—Dimension X is the laying length.

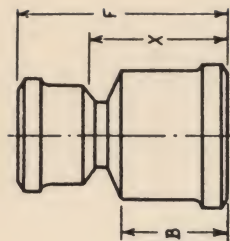


FIGURE 17.—Double hub.

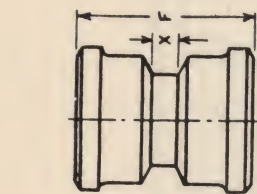


FIGURE 18.—Reducer.

TABLE XXVIII.—Double hub (fig. 17)¹

Size (inches)	F		X		Weight		Size (inches)	F		X		Weight	
	Inches	Pounds	Inches	Pounds	Inches	Pounds		Inches	Pounds	Inches	Pounds	Inches	Pounds
2.....	6	1	6 $\frac{1}{4}$	1	8	1	8	8 $\frac{1}{4}$	1	10	1	11 $\frac{1}{4}$	25
3.....	7	1	7 $\frac{1}{4}$	1	11	1	11	10	1	12	1	13 $\frac{1}{4}$	30
4.....	7	1	7 $\frac{1}{4}$	1	13	1	13	10	1	15	1	16 $\frac{1}{4}$	37
5.....	7	1	7 $\frac{1}{4}$	1	15	1	15	10	1	17	1	18 $\frac{1}{4}$	41

¹ For hub details, see table II.

NOTE.—Dimension X is the laying length.

TABLE XXIX.—Reducers (fig. 18)¹

Size (Inches)	B		F		X		Weight		Size (Inches)	B		F		X		Weight Pounds
	Inches	3 1/4	Inches	7 1/2	Inches	4 1/2	Pounds	6		Inches	4 1/2	Inches	9	Inches	9	
8 by 2	-----							6	8 by 6	-----						21
4 by 2	-----							7	10 by 4	-----						25
4 by 3	-----							8	10 by 6	-----						26
4 by 4	-----							10	10 by 8	-----						27
4 by 5	-----							11	10 by 10	-----						33
4 by 6	-----							12	12 by 4	-----						33
4 by 7	-----							11	12 by 6	-----						34
4 by 8	-----							12	12 by 8	-----						35
4 by 9	-----							13	12 by 10	-----						36
4 by 10	-----							14	12 by 12	-----						41
4 by 11	-----							15	12 by 14	-----						44
4 by 12	-----							16	15 by 6	-----						51
4 by 13	-----							17	15 by 8	-----						53
4 by 14	-----							18	15 by 10	-----						60
4 by 15	-----							20	15 by 12	-----						67

¹ For hub and spigot details, see table II.

NOTE.—Dimension X is the laying length.

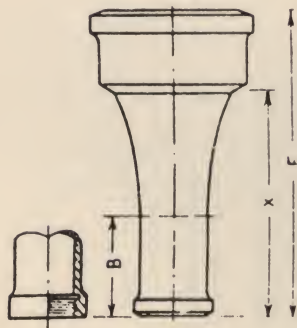


FIGURE 19.—Increasers, spigot and tapped.

TABLE XXX.—Increaser (fig. 19)¹

Size (inches)	B	F	X	Weight	Size (inches)	B	F	X	Weight
	Inches	Inches	Inches	Pounds		Inches	Inches	Inches	Pounds
2 by 3.....	4	11 3/4	9	9	5 by 8.....	4	15 1/2	12	34
2 by 4.....	4	12	9	9	5 by 10.....	4	15 1/2	12	44
2 by 5.....	4	12	9	9	6 by 8.....	4	15 1/2	12	35
2 by 6.....	4	12	9	13	6 by 10.....	4	15 1/2	12	45
3 by 4.....	4	12	9	9	6 by 12.....	4	16 1/4	12	56
3 by 5.....	4	12	9	14	8 by 10.....	5 1/2	15 1/2	12	55
3 by 6.....	4	12	9	15	8 by 12.....	5 1/2	16 1/4	12	64
4 by 5.....	4	12	9	16	8 by 15.....	5 1/2	16 1/4	12	77
4 by 6.....	4	12	9	32	10 by 12.....	5 1/2	16 1/4	12	88
5 by 6.....	4	15 1/2	12	18	10 by 15.....	7	16 1/4	12	97
					12 by 15.....	7	16 1/4	12	

¹ For hub and spigot details, see table II.

NOTE.—Dimension X is the laying length.

TABLE XXXI.—Increaser, tapped (fig. 19)¹

Size (inches) (note 1)	B	F	X	Weight
	Inches	Inches	Inches	Pounds
1 1/4 by 2.....	4	10 1/2	8	7
2 by 3.....	4	10 3/4	8	9
2 by 4.....	4	12	9	11
2 by 5.....	4	12	9	12
2 by 6.....	4	12	9	14

¹ For hub details, see table II.

NOTE 1.—Tapping boss may be tapped for 1 1/4-, 1 1/2-, or 2-inch pipe, except size 1 1/4 by 2 inches, which may be tapped 1 1/4 or 1 1/2 inches only. For tapping boss details see table XL.

NOTE 2.—Dimension X is the laying length.

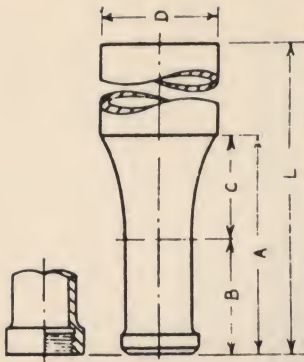


FIGURE 20.—Long increasers, spigot and tapped.

TABLE XXXII.—Long Increaser, Spigot and Tapped (fig. 20)

Size (inches)	A	B	C ¹	D	L	Weight, spigot ¹	Weight, tapped
	Inches	Inches	Inches	Inches	Inches	Pounds	Pounds
2 by 4 by 24.....	8 1/2	4	4 1/2	4 1/2	24	19	19
2 by 4 by 30.....	8 1/2	4	4 1/2	4 1/2	30	23	24
2 by 4 by 36.....	8 1/2	4	4 1/2	4 1/2	36	27	29
2 by 4 by 48.....	8 1/2	4	4 1/2	4 1/2	48	39	40
3 by 4 by 24.....	8 1/2	4	4 1/2	4 1/2	24	20	20
3 by 4 by 30.....	8 1/2	4	4 1/2	4 1/2	30	25	26
3 by 4 by 36.....	8 1/2	4	4 1/2	4 1/2	36	30	31
3 by 4 by 48.....	8 1/2	4	4 1/2	4 1/2	48	41	42
4 by 5 by 24.....	8 1/2	4	4 1/2	5 1/2	24	25	26
4 by 5 by 30.....	8 1/2	4	4 1/2	5 1/2	30	31	33
4 by 5 by 36.....	8 1/2	4	4 1/2	5 1/2	36	38	39
4 by 5 by 48.....	8 1/2	4	4 1/2	5 1/2	48	51	52
4 by 6 by 21.....	8 1/2	4	4 1/2	6 1/2	21	29	30
4 by 6 by 30.....	8 1/2	4	4 1/2	6 1/2	30	36	38
4 by 6 by 36.....	8 1/2	4	4 1/2	6 1/2	36	44	45
4 by 6 by 48.....	8 1/2	4	4 1/2	6 1/2	48	59	61

¹ All markings shall be on small end and in space indicated by dimension C.

NOTE 1.—For spigot details, see table II. For tapping boss details, see table XL.

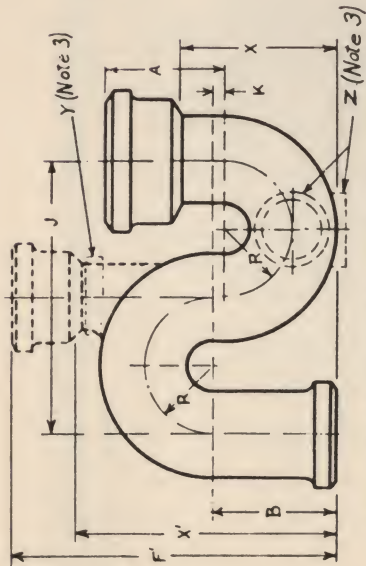


FIGURE 21.—S trap with or without vent and cleanout.

TABLE XXXIII.—S traps with or without vent and cleanout (fig. 21)

Size (inches)	Dimensions in inches ¹										Weight without hub vent (pounds)	Weight with hub vent (pounds)
	A	B	C	D	E	F	G	H	I	J		
2 by 2	3	3 1/4	10	12	10	8	2	2 1/4	3	7 1/2	9	12
3 by 2	4 1/4	4 1/2	12	14	12	10	2 1/4	3 1/4	4	9 1/4	20	23
3 by 3	5 1/4	5 1/2	14	16	14	12	3	4 1/4	5 1/4	11 1/4	24	27
4 by 2	5 1/2	5 3/4	14 1/4	16 1/4	14 1/4	12 1/4	3 1/4	4 1/2	5 1/2	11 3/4	30	33
4 by 3	6 1/4	6 1/2	16 1/4	18 1/4	16 1/4	14 1/4	4 1/4	5 1/2	6 1/4	13 1/4	34	37
4 by 4	6 1/2	6 3/4	16 1/2	18 1/2	16 1/2	14 1/2	4 1/2	5 3/4	6 1/2	13 1/2	36	39
5 by 2	6 3/4	7 1/4	18 1/4	20 1/4	18 1/4	16 1/4	4 3/4	6 1/4	7 1/4	15 1/4	41	44
5 by 3	7 1/4	7 1/2	18 1/2	20 1/2	18 1/2	16 1/2	5 1/4	6 3/4	7 3/4	15 3/4	44	47
5 by 4	7 1/2	7 3/4	18 3/4	20 3/4	18 3/4	16 3/4	5 3/4	6 3/4	7 3/4	15 3/4	46	49
6 by 2	7 3/4	8 1/4	20 1/4	22 1/4	20 1/4	18 1/4	5 3/4	7 1/4	8 1/4	17 1/4	54	57
6 by 3	8 1/4	8 1/2	20 1/2	22 1/2	20 1/2	18 1/2	6 1/4	7 1/2	8 1/2	17 1/2	54	57
6 by 4	8 1/2	8 3/4	20 3/4	22 3/4	20 3/4	18 3/4	6 1/2	7 3/4	8 3/4	17 3/4	54	57
6 by 5	8 3/4	9 1/4	22 1/4	24 1/4	22 1/4	20 1/4	6 3/4	8 1/4	9 1/4	19 1/4	54	57
6 by 6	9 1/4	9 1/2	22 1/2	24 1/2	22 1/2	20 1/2	7 1/4	8 1/2	9 1/2	19 1/2	54	57

¹ For details of hubs and spigots, see table II.
 NOTE 1.—A minimum water seal of 2 inches is provided for the 2-inch size, and of 2 1/4 inches for sizes 3 to 6 inches, inclusive.
 NOTE 2.—Dimensions J, X, and X' are laying lengths.
 NOTE 3.—Traps with tapped vent and cleanout shall have tappings of sizes indicated below. For details of tapping bosses, see table XI. For screw plugs, see table XXVII.

Size (inches)	I. P. S. tapping at Y	I. P. S. tapping at Z	Size (inches)	I. P. S. tapping at Y	I. P. S. tapping at Z
2	1 1/4	1 1/4	5	4	3
3	2 1/4	2 1/4	6	4	3
4	3 1/4	3 1/4			

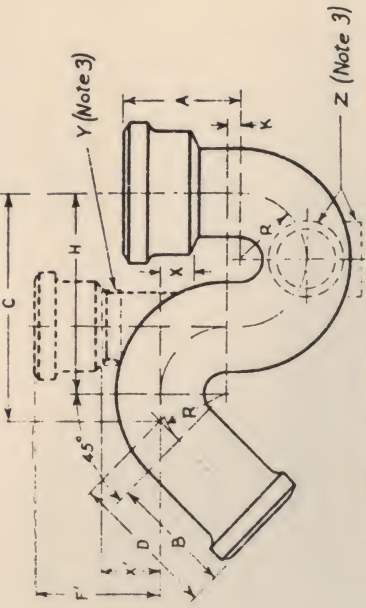


FIGURE 22.—3/4 S trap with or without vent and cleanout

TABLE XXXIV.—3/4 S traps with or without vent and cleanout (fig. 22)

Size (inches)	Dimensions in inches ¹										Weight without hub vent (pounds)	Weight with hub vent (pounds)
	A	B	C	D	E	F	G	H	I	J		
2 by 2	3	3 1/4	6 1/4	4 1/4	4 1/4	4 1/4	2	2 1/4	3	7 1/2	8	11
3 by 2	4 1/4	4 1/2	8 1/4	5 1/4	5 1/4	5 1/4	2 1/4	3 1/4	4	9 1/4	18	21
3 by 3	5 1/4	5 1/2	10 1/4	6 1/4	6 1/4	6 1/4	3	4 1/4	5 1/4	11 1/4	22	25
4 by 2	5 1/2	5 3/4	10 1/2	6 1/2	6 1/2	6 1/2	3 1/4	4 1/2	5 1/2	11 3/4	27	30
4 by 3	6 1/4	6 1/2	12 1/4	7 1/4	7 1/4	7 1/4	4 1/4	5 1/2	6 1/4	13 1/4	31	34
4 by 4	6 1/2	6 3/4	12 1/2	7 1/2	7 1/2	7 1/2	4 1/2	5 3/4	6 1/2	13 1/2	33	36
5 by 2	6 3/4	7 1/4	14 1/4	8 1/4	8 1/4	8 1/4	5 1/4	6 1/4	7 1/4	15 1/4	37	40
5 by 3	7 1/4	7 1/2	14 1/2	8 1/2	8 1/2	8 1/2	5 3/4	6 3/4	7 3/4	15 3/4	37	40
5 by 4	7 1/2	7 3/4	14 3/4	8 3/4	8 3/4	8 3/4	6 1/4	6 3/4	7 3/4	15 3/4	37	40
6 by 2	7 3/4	8 1/4	16 1/4	9 1/4	9 1/4	9 1/4	6 1/4	7 1/4	8 1/4	17 1/4	49	52
6 by 3	8 1/4	8 1/2	16 1/2	9 1/2	9 1/2	9 1/2	6 3/4	7 1/2	8 1/2	17 1/2	49	52
6 by 4	8 1/2	8 3/4	16 3/4	9 3/4	9 3/4	9 3/4	7 1/4	7 3/4	8 3/4	17 3/4	49	52
6 by 5	8 3/4	9 1/4	18 1/4	10 1/4	10 1/4	10 1/4	7 1/2	8 1/4	9 1/4	19 1/4	49	52
6 by 6	9 1/4	9 1/2	18 1/2	10 1/2	10 1/2	10 1/2	8 1/4	8 1/2	9 1/2	19 1/2	49	52

¹ For details of hubs and spigots, see table II.
 NOTE 1.—A minimum water seal of 2 inches is provided for the 2-inch size, and of 2 1/4 inches for sizes 3 to 6 inches, inclusive.
 NOTE 2.—Dimensions C, D, X, and X' are laying lengths.
 NOTE 3.—For traps with tapping at Y and Z, see table XXXIII, note 3 [page 27].

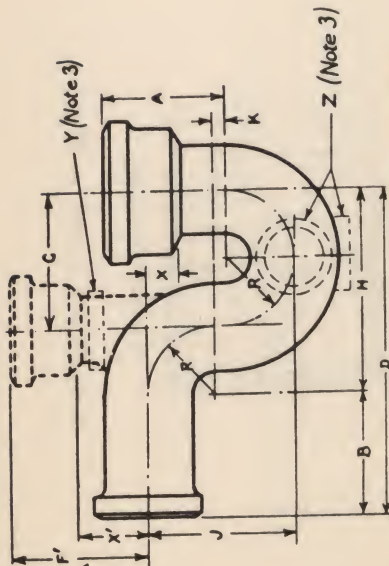


FIGURE 23.—1/4 S trap with or without vent and cleanout

TABLE XXXV.—1/4 S traps with or without vent and cleanout (fig. 23)

Size (inches)	Dimensions in inches ¹										Weight without hub vent (pounds)	Weight with hub vent (pounds)
	A	B	C	D	E	F	G	H	I	J		
2 by 2	3	3 1/2	4	9 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	8	11
3 by 2	4	4 1/2	5	12	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	17	20
3 by 3	4 1/2	4 1/2	5	12	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	17	21
4 by 2	5 1/2	5 1/2	6	14	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	25	28
4 by 3	5 1/2	5 1/2	6	14	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	25	29
4 by 4	5 1/2	5 1/2	6	14	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	25	31
5 by 4	6 1/2	6 1/2	7	15 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	34	40
5 by 5	6 1/2	6 1/2	7	15 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	34	41
6 by 4	7 1/2	7 1/2	8	17	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	45	54
6 by 5	7 1/2	7 1/2	8	17	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	45	55
6 by 6	7 1/2	7 1/2	8	17	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	45	57
8 by 4	10	10	10	22	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	97	103
8 by 5	10	10	10	22	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	97	107
8 by 6	10	10	10	22	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	97	107
10 by 6	12	12	12	25	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	166	175
10 by 7	12	12	12	25	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	166	175
12 by 6	13 1/2	13 1/2	13 1/2	30 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	242	251
12 by 7	13 1/2	13 1/2	13 1/2	30 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	242	251
12 by 8	13 1/2	13 1/2	13 1/2	30 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	242	264
15 by 8	16 1/2	16 1/2	16 1/2	35 1/2	18 1/2	18 1/2	18 1/2	18 1/2	18 1/2	18 1/2	398	425

¹ For details of hubs and spigots, see table II.

NOTE 1.—A minimum water seal of 2 inches is provided for the 2-inch size; of 2 1/2 inches for sizes 3 to 6 inches, inclusive; of 3 inches for sizes 8 to 12 inches, inclusive; and of 3 1/2 inches for the 15-inch size.

NOTE 2.—Dimensions D, X, and X' are laying lengths. Dimension X is measured below the horizontal center line on sizes 5 by 5 inches and smaller, and above the horizontal center line on sizes 8 by 4 inches and larger.

NOTE 3.—Traps with tapped vent and cleanout shall have tappings of sizes indicated below. For details of tapping bosses, see table XL. For screw plugs, see table XXXVII.

Size (inches)	I. P. S. tapping at Y	I. P. S. tapping at Z	Size (inches)	I. P. S. tapping at Y	I. P. S. tapping at Z
2	1 1/4	1 1/4	8	None	None
3	2 1/4	2 1/4	10	None	None
4	3 1/4	3 1/4	12	None	None
5	4	4	15	None	None
6	4	4			

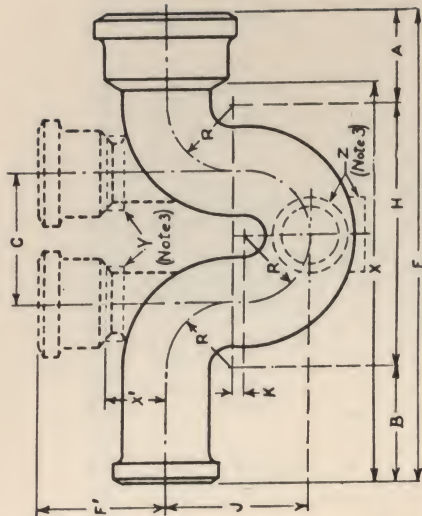


FIGURE 24.—Running trap with or without single or double vents and cleanout.

TABLE XXXVI.—Running traps with or without single or double vents and cleanout. (Fig. 24)

Size (inches)	Dimensions in inches ¹										Weight ² (pounds)	
	A	B	C	D	E	F	G	H	I	J	W ₁	W ₂
2 by 2	3	3 1/2	4	14 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2		
3 by 2	4	4 1/2	5	17 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	19	22
3 by 3	4	4 1/2	5	17 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	19	23
4 by 2	5 1/2	5 1/2	6	20 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	23	27
4 by 3	5 1/2	5 1/2	6	20 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	23	28
4 by 4	5 1/2	5 1/2	6	20 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	23	30
5 by 4	6 1/2	6 1/2	7	22 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	27	32
5 by 5	6 1/2	6 1/2	7	22 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	27	33
6 by 4	7 1/2	7 1/2	8	24 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	37	43
6 by 5	7 1/2	7 1/2	8	24 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	37	45
6 by 6	7 1/2	7 1/2	8	24 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	37	45
8 by 4	10	10	10	31 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	48	57
8 by 5	10	10	10	31 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	48	57
8 by 6	10	10	10	31 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	48	57
10 by 6	12	12	12	35 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	103	115
10 by 7	12	12	12	35 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	103	115
12 by 6	13 1/2	13 1/2	13 1/2	43	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	184	193
12 by 7	13 1/2	13 1/2	13 1/2	43	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	184	193
12 by 8	13 1/2	13 1/2	13 1/2	43	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	184	193
15 by 8	16 1/2	16 1/2	16 1/2	50	18 1/2	18 1/2	18 1/2	18 1/2	18 1/2	18 1/2	278	300

¹ For details of hubs and spigots, see table II.

² Weights are given as follows: W₁, without hub vent; W₂, with single hub vent; W₃, with double hub vent.

NOTE 1.—A minimum water seal of 2 inches is provided for the 2-inch size; of 2 1/2 inches for sizes 3 to 6 inches, inclusive; of 3 inches for sizes 8 to 12 inches, inclusive; and of 3 1/2 inches for the 15-inch size.

NOTE 2.—Dimensions X and X' are laying lengths.

NOTE 3.—For traps with tapping at Y and Z, see table XXXV, note 3.

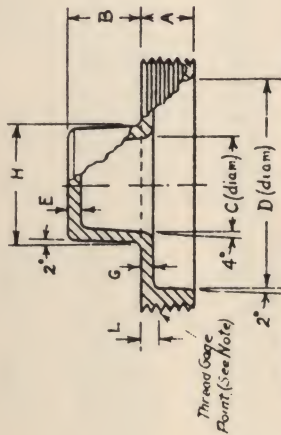


FIGURE 25.—Screw plugs, I. P. S. (brass.)

TABLE XXXVII.—Screw plugs, I. P. S. (brass) (fig. 25)

Iron pipe size (inches)	Dimensions in inches							Weight (pounds)
	A	B	C	D	E	G	L (see note)	
1 1/4	1 1/2	3/4	1 3/16	1 3/16	5/16	1/4	1	1 1/2
1 1/2	1 3/4	7/8	1 1/2	1 1/2	3/8	1/4	1 1/4	2 1/2
2	2	1	1 1/2	1 1/2	3/8	1/4	1 1/4	3 1/2
2 1/2	2 1/4	1 1/4	1 3/4	1 3/4	3/8	1/4	1 1/4	4 1/2
3	2 3/4	1 1/2	2	2	3/8	1/4	1 1/4	5 1/2
3 1/2	3	1 3/4	2 1/4	2 1/4	3/8	1/4	1 1/4	6 1/2
4	3 1/4	2	2 1/2	2 1/2	3/8	1/4	1 1/4	7 1/2
4 1/2	3 1/2	2 1/4	2 3/4	2 3/4	3/8	1/4	1 1/4	8 1/2
5	3 3/4	2 1/2	3	3	3/8	1/4	1 1/4	9 1/2
5 1/2	4	2 3/4	3 1/4	3 1/4	3/8	1/4	1 1/4	10 1/2
6	4 1/4	3	3 1/2	3 1/2	3/8	1/4	1 1/4	11 1/2

1 Heads of plugs shall be hexagonal.

2 Nonstandard taper pipe thread with same thread proportions as standard sizes

NOTE.—When thread gage is screwed tightly on plug by hand, large end of gage shall be the distance "L," $\pm 1/4$ turns, from surface of plug

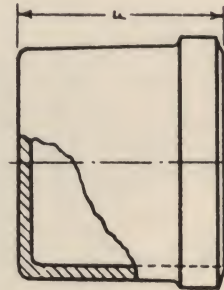


FIGURE 26.—Plug for hub.

APPLIES TO CLASS A ONLY

TABLE XXXVIII.—Plugs for hub (fig. 26)

Size (inches)	F	Weight (Pounds)	Size (inches)	F	Weight (Pounds)
2	3 1/2	1 1/4	8	4 1/2	15
3	3 3/4	3	10	4 1/2	23
4	4	4 1/4	12	5 1/4	33
5	4	6	15	5 1/4	50
6	4	8			

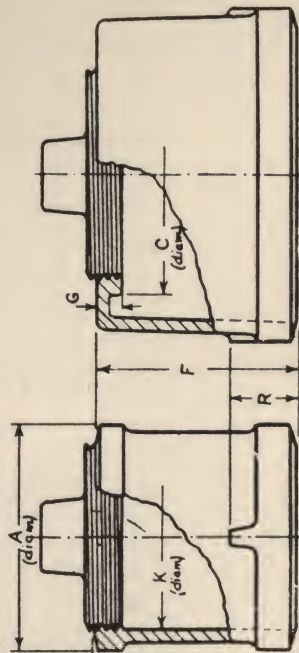


FIGURE 27.—Iron body ferrules with brass screw plug.

TABLE XXXIX.—Iron body ferrules with brass screw plug (fig. 27)

Size (inches)	Dimensions in inches							Weight without plug (pounds)
	A	B	C	F	I. P. S. tapping	Depth of tapping G	R	
2	2 3/4	3/4	3 1/2	3 1/2	1 1/2	1 1/2	2	1 1/2
3	3 3/4	7/8	4 1/2	4 1/2	2 1/2	2 1/2	3	2 3/4
4	4 3/4	1 1/4	5 1/2	5 1/2	3 1/2	3 1/2	4	4
5	5 3/4	1 1/2	6 1/2	6 1/2	4 1/2	4 1/2	5	5
6	6 3/4	1 3/4	7 1/2	7 1/2	5 1/2	5 1/2	6 1/2	6
8			9 1/2	9 1/2	6	6	8	12
10			11 1/2	11 1/2	6	6	10	20
12			13 1/2	13 1/2	6	6	12	28
15			16 1/2	16 1/2	6	6	15	43

NOTE 1.—Tappings for sizes 2 inch to 6 inch, inclusive, allow entrance of testing plugs.

NOTE 2.—For screw plugs, see table XXXVII.

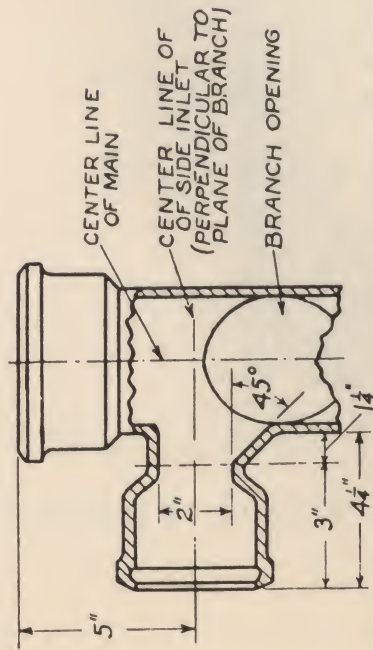


FIGURE 28.—Dimensions and location of 2-inch side inlet for single or double sanitary T branches and Y branches.

NOTE.—Single and double sanitary T branches and single and double Y branches with 2-inch side inlets are standard in the following sizes only: 4- by 3- by 2-inch; 4- by 4- by 2-inch; 5- by 4- by 2-inch; 6- by 4- by 2-inch.

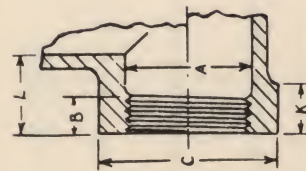


FIGURE 29.—Details of tapping bosses, 1 1/4 to 5 1/2 inch, I. P. S. for fittings in tables XI, XII, XV, XX, XXI, and XXXIII to XXXVI, inclusive.

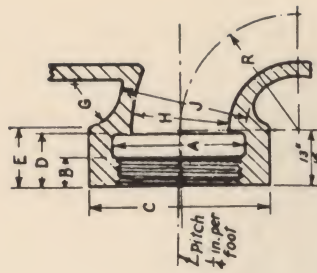


FIGURE 30.—Details of tapping bosses, 1 1/4 to 2 inch, I. P. S. for fittings in table XVIII (fig. 11).

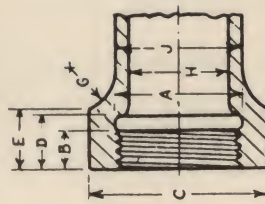


FIGURE 31.—Details of tapping bosses, 1 1/4 to 4 inch, I. P. S. for fittings shown in tables XXXI and XXXII.

TABLE XL.—Dimensions for tapping bosses, in inches (figs. 29, 30, 31)

Iron pipe size (inches)	A	B	C	D	E	G	H	J	K	L	R
1 1/4	1 1/4	7/16	2 1/4	3/4	7/8	1 1/2	1 1/2	1 1/2	1 1/2	1 1/4	1 1/4
1 1/2	1 1/2	7/16	2 1/4	3/4	7/8	1 1/2	1 1/2	1 1/2	1 1/2	1 1/4	1 1/4
2	2	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4
2 1/2	2 1/2	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4
3	3	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4
3 1/2	3 1/2	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4
4	4	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4
4 1/2	4 1/2	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4
5 1/2	5 1/2	7/16	3 1/4	3/4	1 1/2	1 1/2	2	2 1/2	1 1/2	1 1/4	1 1/4

TABLE XLI.—Weights of long fittings

Kind of fitting	Length (See note)	Size of fitting (inches)																									
		2		3		4		5		6		3 by 2		4 by 2		5 by 2		5 by 3		6 by 2		6 by 3		6 by 4		6 by 5	
		Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Long ¼ bend (table IV).....	12	8	14	19	23	28	33	39	47	56	66	77	88	100	112	125	138	152	166	180	194	208	222	236	250	264	278
	14	10	18	24	30	36	44	52	61	71	82	93	104	116	128	140	152	164	176	188	200	212	224	236	248	260	272
	16	12	20	28	36	44	53	63	73	84	95	106	117	128	140	152	164	176	188	200	212	224	236	248	260	272	284
	18	14	24	34	43	53	63	74	85	96	107	118	129	140	152	164	176	188	200	212	224	236	248	260	272	284	296
Long ½ bend (table VIII).....	12	7	13	17	22	26	31	37	43	50	58	66	74	82	90	98	106	114	122	130	138	146	154	162	170	178	186
	14	9	17	23	28	34	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185	193	201
	16	11	19	27	33	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200	208
	18	13	21	30	38	46	54	62	70	78	86	94	102	110	118	126	134	142	150	158	166	174	182	190	198	206	214
Long T branch (table XIX).....	12	11	20	27	33	39	47	56	66	77	88	100	112	125	138	152	166	180	194	208	222	236	250	264	278	292	306
	14	13	24	32	40	48	57	67	78	89	100	112	124	136	148	160	172	184	196	208	220	232	244	256	268	280	292
	16	15	27	36	45	54	64	74	84	94	104	114	124	134	144	154	164	174	184	194	204	214	224	234	244	254	264
	18	17	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270
Long sanitary T branch (table XVII).....	12	12	21	28	35	42	50	58	66	74	82	90	98	106	114	122	130	138	146	154	162	170	178	186	194	202	210
	14	14	25	33	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200	208	216
	16	16	28	37	46	55	63	72	81	90	99	108	117	126	135	144	153	162	171	180	189	198	207	216	225	234	243
	18	18	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270
Long Y branch (table X).....	12	12	22	30	37	43	51	59	67	75	83	91	99	107	115	123	131	139	147	155	163	171	179	187	195	203	211
	14	14	26	35	43	51	59	67	75	83	91	99	107	115	123	131	139	147	155	163	171	179	187	195	203	211	219
	16	16	28	38	46	54	62	70	78	86	94	102	110	118	126	134	142	150	158	166	174	182	190	198	206	214	222
	18	18	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270
Long double Y branch (table X).....	12	15	28	38	46	54	62	70	78	86	94	102	110	118	126	134	142	150	158	166	174	182	190	198	206	214	222
	14	17	32	43	52	62	72	82	92	102	112	122	132	142	152	162	172	182	192	202	212	222	232	242	252	262	272
	16	19	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312	324
	18	21	40	53	67	81	95	109	123	137	151	165	179	193	207	221	235	249	263	277	291	305	319	333	347	361	375
Long tapped T branch (table XX).....	12	10	18	24	30	36	44	52	60	68	76	84	92	100	108	116	124	132	140	148	156	164	172	180	188	196	204
	14	12	20	28	36	44	53	62	71	80	89	98	107	116	125	134	143	152	161	170	179	188	197	206	215	224	233
	16	14	24	32	40	48	57	66	75	84	93	102	111	120	129	138	147	156	165	174	183	192	201	210	219	228	237
	18	16	26	35	44	53	62	71	80	89	98	107	116	125	134	143	152	161	170	179	188	197	206	215	224	233	242
Long tapped sanitary T branch (table XVIII).....	12	8	14	19	23	28	33	39	47	56	66	77	88	100	112	125	138	152	166	180	194	208	222	236	250	264	278
	14	10	18	24	30	36	44	52	61	71	82	93	104	116	128	140	152	164	176	188	200	212	224	236	248	260	272
	16	12	20	28	36	44	53	63	73	84	95	106	117	128	140	152	164	176	188	200	212	224	236	248	260	272	284
	18	14	24	34	43	53	63	74	85	96	107	118	129	140	152	164	176	188	200	212	224	236	248	260	272	284	296
Long tapped double (table XVIII).....	12	11	20	27	33	39	47	56	66	77	88	100	112	125	138	152	166	180	194	208	222	236	250	264	278	292	306
	14	13	24	32	40	48	57	67	78	89	100	112	124	136	148	160	172	184	196	208	220	232	244	256	268	280	292
	16	15	27	36	45	54	64	74	84	94	104	114	124	134	144	154	164	174	184	194	204	214	224	234	244	254	264
	18	17	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270

¹ Tapped 1¼, 1½, and 2 inch, I. P. 8.
 Note.—The length of bends is measured from end of spigot to intersection of hub and spigot center lines (D on fig. 2). The length of T and Y branches is measured as the laying length (X on fig. 5).

WHY CAST IRON SOIL PIPE?

From roof vent to street sewer, **permanent cast iron soil pipe** is the only material that can be backed up by generations of performance. That's one reason why every plumbing code in the country is built around **permanent cast iron soil pipe** and fittings.

CAST IRON SOIL PIPE

- Withstands fracture by ground settlement, root growth or vibration.
- Is self-supporting and can stand heavy loads, such as under drive-ways, without injury.
- Can be used both inside and outside the building.
- Cannot be penetrated by nails and spikes driven in the walls of the building.
- Can be cut easily and cheaply on the job to meet roughing-in requirements.
- Resists the action of solid, liquid and gaseous sewage.

**YOU CAN RELY ON TIME-TESTED
PERMANENT CAST IRON SOIL PIPE AND FITTINGS**

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 The American Brass & Iron Foundry
 Alachua Foundry Company
 American Bell Pipe Company
 Ayala Pipe & Foundry Company, Inc.
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CAST IRON SOIL PIPE INSTITUTE

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